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REMARKS

The pending Claims are 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, and 39-41. Claims 2-5, 7, 11, 16-19, 21, 24, 30-33, 35 and 38 are withdrawn. Claims 10, 23, and 37 are canceled. Claims 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, and 39-41 are rejected under 35 U.S.C. §103(a).

Rejection under 35 U.S.C. § 103

Claims 1, 6, 8-10, 12-15, 20, 22, 23, 25-29, 34, 36, 37, and 39-41 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over US2003/0091862 A1, Tokito et al. (hereafter *Tokito*). Applicants respectfully maintain their traverse of this rejection.

Applicants present remarks herein to provide a detailed explanation of why *Tokito* does not teach or suggest the subject matter embodied in the pending claims. These remarks are provided with specific emphasis on the independent claims, pending Claims 1, 15, and 29. Because the independent claims are direct to subject matter that is novel and would not have been obvious, the dependent claims are likewise patentable. Applicants restate and incorporate by reference herein remarks previously made of record.

The pending claims are directed to compositions (Claim 1 and its dependent claims), luminescent material (Claim 15 and its dependent claims), and devices (Claim 29 and its dependent claims). The claims, original and as previously presented, are directed to subject matter comprising (a) a conjugated polymeric backbone; (b) a plurality of a first-type functional groups; and (c) a plurality of first-type inert spacer groups, wherein each of the plurality of first-type functional groups is covalently bound to at least one of the plurality of first-type inert spacer groups, which first-type inert spacer groups are covalently bound to the polymeric backbone, wherein at least one of the first-type inert spacer groups is an alkyl chain of from 4 to 12 carbon atoms. *Tokito* does not teach or suggest any subject matter with these elements.

Tokito discloses an organic polymeric phosphorescent compound having both phosphorescent repeat units and carrier (*i.e.*, hole or electron) transporting repeat units. The “phosphorescent site” is the portion of the phosphorescent unit emitting phosphorescence, and the “carrier transporting site” is the portion of the carrier transporting unit that transports a carrier. *Tokito* discloses polymeric phosphorescent compounds in which both the

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phosphorescent unit and the carrier unit are in the main chain, those in which either one is a side chain, and one in which both are side chains. In polymer types wherein both units reside in the main chain or the carrier unit is a side chain, the metal complex is in the polymer backbone and is not covalently bound to a spacer group which is covalently bound to a polymer backbone, as recited in Applicants' Claims 1, 15, and 29. The requirement that the metal complex be covalently bound to a spacer group which is covalently bound to a conjugated polymer backbone is an essential limitation in all the claims at issue, and is neither taught nor suggested by *Tokito*.

In the remaining polymer types of *Tokito*, those in which the phosphorescent unit is a side chain, the phosphorescent metal complexes are in side chains. However, there is no teaching or suggestion in *Tokito* of attaching the metal complexes to *conjugated* polymeric backbones, as recited in Applicants' Claims 1, 15 and 29. The Examiner cited paragraphs [92]-[94] in *Tokito* as a teaching of a "polymer of which a main chain is a conjugate system". The Examiner further states that the "R groups of the above formula [polyfluorene] may include alkyl groups...per the 'first-type inert spacer group'". Applicants respectfully traverse this characterization. Applicants note that *Tokito* actually states that divalent groups, such as polyfluorene ("FO"), "are incorporated into the main chain of the polymer as fluorescent (*sic.*) sites." *See Tokito*, paragraph [93], last sentence. The R groups in the divalent FO group of *Tokito* can be alkyl or alkoxy groups, but these are substituents on the FO; such "R"s are not linking the polyfluorene to a metal complex, *i.e.*, not a first-type inert spacer group. *See Tokito*, Figure FO in paragraph [93]. There is nothing in *Tokito* that teaches or suggests that one could attach a phosphorescent metal complex to a fluorene polymer, certainly not using an inert spacer group as defined in pending Claims 1, 15 and 29 of the present application.

Examples of polymeric fluorene in *Tokito*, are shown in the two copolymers in paragraph [106] (last two structure at pages 9 and 10) where both the fluorene and the iridium ligand are in the polymer backbone (*i.e.*, a *Tokito* type (a) polymer) and neither copolymer has a first type inert spacer as recited in the pending claims. Please also refer to paragraphs [93] and [94] in which *Tokito* explicitly teaches that PV, FO, PP and TF may be used as phosphorescent units *in the main chain*, as well as paragraph [95] in which none of P1-P4 (pp. 7-8) contain an FO group in the copolymers depicted.

Moreover, while the homopolymers of fluorene are taught to be useful as charge transport polymers in devices in paragraph [130] of *Tokito* ("CP2" on page 11 of *Tokito*), the

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Tokito homopolymers have no metal complexes of any variety. Again, *Tokito* provides no teaching or suggestion of a phosphorescent metal complex attached to a polyfluorene group in a polymeric backbone, without or without a spacer -- let alone a plurality of first-type inert spacer groups as presently claimed.

Summation

A single reference cited as 35 U.S.C. §103(a) prior art must not only teach or suggest the elements of the claimed invention being examined, that reference must also provide the motivation for the modifications in the claims under examination that result in the claim elements at issue. There has been no showing that *Tokito* would motivate one possessing ordinary skill in the art to provide a single conjugated polymer chain to which inert groups are covalently bound and which, in turn, covalently bond functional groups. The present claims have eliminated the requirement that phosphorescent units and carrier units either occupy the main chain or are pendent as side chains therefrom. The present claims also eliminate the requirements that the ration of repeating phosphorescent units to the total number of phosphorescent units and repeating carrier units be equal to or less than 0.2, in other words, the ratio should be $0.0001 \leq m/(m+n) \leq 0.2$ (please see *Tokito* at [108]). In addition, the present claims eliminate the requirement that the degree of polymerization of the organic polymeric phosphorescent compound be at least 5 and no more than 5000, to insure that a uniform and stable film can be formed (please see *Tokito* at [119], pages 10-11). Applicants submit that it is a well settled principle that where an invention under examination eliminates elements of the prior art invention and is still capable of providing similar functionality, the necessary motivation to modify the prior art may be absent.

Applicants respectfully submit that for all of the foregoing reasons, the pending claims are not obvious over *Tokito* and respectfully request that this rejection be withdrawn.

Conclusion

Applicants respectfully submit that a fully responsive submission to the Final Office Action dated 12-22-2005 has been made in this paper, and that the remaining grounds for rejection have been overcome. In view of the foregoing remarks, a Notice of Allowance for Claims 1, 6, 8, 9, 12-15, 20, 22, 25-29, 34, 36, and 39-41 is earnestly requested.

Applicants believe that no fee is required to accompany this paper. In the event that a fee, not accounted for herein, is due, please charge said fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company). The fee to accompany the Notice of Appeal is authorized on a separate form. Should the Examiner have any questions about the contents of

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this paper or the status of the application, the Examiner is invited to call the undersigned at the telephone number listed below.

Respectfully submitted,



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